

FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6074
COWLITZ COUNTY LANDFILL
DEPARTMENT OF PUBLIC WORKS

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INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST 6074. The Department of Ecology (the Department) is proposing to issue this permit, which will allow discharge of wastewater to the Three Rivers Regional Wastewater Plant (TRRWP) (formerly Cowlitz Water Pollution Control Plant). This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington State law (Revised Code of Washington [RCW] 90.48.080 and 90.48.160) requires that a permit be issued before discharge of wastewater to waters of the state is allowed. This statute includes commercial or industrial discharges to sewerage systems operated by municipalities or public entities which discharge into public waters of the state. Regulations adopted by the state include procedures for issuing permits and establish requirements which are to be included in the permit (Chapter 173-216 Washington Administrative Code [WAC]).

This fact sheet and draft permit are available for review by interested persons as described in Appendix A—Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D—Response to Comments.

<u>GENERAL INFORMATION</u>	
Applicant	Cowlitz County Department of Public Works
Facility Name and Address	Cowlitz County Landfill 85 Tennant Way Longview, WA 98632
Type of Facility:	Municipal Sanitary Landfill
Facility Discharge Location	Latitude: 46° 06' 33" N Longitude: 122° 54' 36" W.
Treatment Plant Receiving Discharge	Three Rivers Regional Wastewater Treatment Plant (formerly Cowlitz Water Pollution Control Plant)
Responsible Official	Mr. Don Olson Solid Waste Superintendent Address: (same as facility address) Telephone #: (360) 577-3152 FAX #: (360) 414-5557

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

The Cowlitz County Landfill is located approximately three miles south of Kelso near the confluence of the Columbia and Cowlitz Rivers. The site is bounded on the west by the International Paper Log Pond Lock, on the southeast by the Cowlitz River, on the northeast by the diking district and on the north by the railroad track to the industrial area. The site location is shown on Figure 1.



Figure 1 Vicinity Map.

The solid waste disposal activities were initiated at the landfill in 1974. This facility primarily provides municipal waste disposal services to the Longview-Kelso area. Approximately 121,115 tons of refuse material is accepted per year serving Cowlitz and Wahkiakum Counties. This waste facility accepts household, commercial, demolition, and industrial refuse, and ash. Daily cover brought onto the site consists of ash and sand. The site also composts the biosolids from the TRRWP used as cover material for the closed landfill area (Site A area).

The site consists of a number of operational areas, including a leachate lagoon, a flare station, the previously closed landfill Site A area, a composting operation, and Cells 1, 2, 3A, and 3B of the Site B area. Figure 2 (next page) provides a map of the site plan.

F.1 FACILITY MAP - INSPECTION / MANHOLE FOR SAMPLING



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HISTORY

The landfill encompasses an area of approximately 110 acres of which approximately 55 acres have been used for landfiling. The site can be subdivided into the site A area (north landfill) and the site B area (south landfill) which represent different operating phases of the landfill. The north landfill has neither a leachate containment system nor a bottom leachate collection system. It was closed with a MFS (Minimum Function Standards, Washington Administrative Code Chapter 173-304) final cover in December 1991.

Cells 1 and 2 of the Site B area were closed in 2000. The Cell 3 portion of Site B is approximately 23 acres in size and is further divided into Cell 3A and 3B. Cell 3A was constructed in 1996 and began utilization in 2000. Cell 3B began construction in 2002 and began utilization sometime around the beginning of 2003. The Cell 3 area is expected to reach its capacity at the end of 2014.

INDUSTRIAL PROCESSES

Site A area

The Site A area does not have a bottom liner nor a bottom leachate collection system. A toe drain collection system and a leachate underdrain system were constructed to intercept leachate at a toe of the north, south, and west flanks of the closed landfill to minimize impact to the groundwater. The toe drain system consists of a gravel-filled trench and 6-inch polyethylene piping. The underdrain system consists of an 8-inch perforated concrete pipe surrounded by drain rocks. Landfill leachate, including stormwater percolates through the final cover system, groundwater infiltrates through solid waste layers, and water generated from the continued decomposition of solid waste is collected and transported to the north landfill leachate pump station.

Site B area

The Site B area is equipped with a leachate containment and collection system. The leachate containment system consists of a 50-mil flexible membrane liner and a layer of 2 feet of compacted clay liner with permeability of 1×10^{-6} cm/sec. The leachate collection system consists of a series of 8-inch perforated PVC pipe and a 10-inch PVC header. The collected leachate is then transported to the south landfill pump station.

Composting area

The landfill accepts secondary sewage sludge from the Three Rivers Regional Wastewater Plant. Sludge is mixed with saw dust, wood chips, or dredge spoils to form landfill daily cover. Approximately 15 cubic yards of dewatered sludge are used daily. The mixing operation is conducted on a 160' x 120' asphalt pad.

The sludge pad is constructed with asphalt concrete. All surface runoff from the pad is collected at a sediment trap then discharged to the north landfill pump station through a 12-inch PVC line to the leachate pond for treatment.

Leachate Forcemain

The leachate forcemain is approximately 1,800-feet long of HDPE pipe which feeds directly to the Three Rivers Regional Wastewater Plant (TRRWP). All leachate from Sites A and B areas is routed to the TRRWP.

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Based on the permit application submitted to the Department, the landfill is currently discharging approximately 61,200 gallons per day of leachate to the TRRWP. Table 1 provides a breakout of the landfill areas' contribution of leachate quantity.

Table 1. Estimated Average Leachate Quantity.

Site A (North Area)	Site B (South Area)
16,200 gpd	45,000 gpd

TREATMENT PROCESSES

The original leachate treatment system was a two-lagoon system which was constructed in 1974. The system was upgraded in 1990 to handle the anticipated hydraulic and organic loading from the landfill expansion. The earthen dike between two lagoons was removed to increase capacity of the system. A Hypalon baffle was installed to divide the newly constructed lagoon into an aeration basin and a sedimentation basin. Also, a flexible membrane bottom liner was installed to prevent leachate from contaminating groundwater. The aeration basin is equipped with a 10-horsepower aerator.

The capacity of the leachate lagoon is 120,000 cubic feet. The landfill solid waste application states that the anticipated BOD₅ loading from the expanded landfill is 2,500 to 4,000 lbs/day. The expected soluble BOD₅ removal efficiency of the modified system is 80-85 percent at the anticipated loading and the expected system effluent will have 500-1,000 lbs/day of BOD₅. The system should be able to meet the permit limits (interim limits) and also the pretreatment requirements of the TRRWP.

PERMIT STATUS

The previous permit for this facility was issued on November 7, 2001.

An application for permit renewal was submitted to the Department on February 2, 2005 and accepted by the Department on May 27, 2005.

This facility is also covered under a separate Washington State Industrial Stormwater NPDES General Permit (No. SO3-00754D).

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT.

The facility last received a compliance inspection on March 28, 2006 by John Diamant and Don Reif. During the history of the previous permit, the Permittee has remained, for the most part, in compliance based on Discharge Monitoring Reports (DMRs) and other reports submitted to the Department and inspections conducted by the Department. There have been some violations to their permit limitations during the period from January 2002 through March 2006 which are summarized below:

- 6 exceedances of their BOD₅ permit limitation which occurred on January 2002, February 2002, March 2003, January 2006, February 2006, and March 2006. These violations do not concern the Department very much since the BOD₅ limitation was not sufficiently determined and reflected the concentration when a high strength discharge surcharge would be charged by the Three Rivers Regional Authority.

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- 1 exceedance of their free cyanide limitation which occurred on December 2002. This exceedance appears to be an anomaly and may be due to the collection of a poor sample, or analytical error.
- 1 exceedance of their total phenols limitation which occurred on November 2004.
- 2 exceedances of their total suspended solids (TSS) limitation which occurred on November 2003, and January 2006. These violations do not concern the Department very much since the TSS limitation was not sufficiently determined and reflected the concentration when a high strength discharge surcharge would be charged by the Three Rivers Regional Authority.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the permit application and in discharge monitoring reports. The proposed wastewater discharge is characterized in Table 2 (below). The data used for wastewater characterization is from submitted Discharge Monitoring Reports from January 2002 through March 2006.

Table 2. Wastewater Characterization Summary

Parameter	Minimum	Average	Maximum
BOD ₅ (mg/L)	20	114	476
Cyanide (free) (mg/L)	ND	0.05	2.12
Flow (MGD)	0	0.053	0.235
Oil & Grease (mg/L)	ND	9	29
pH (mg/L)	6.38	7.45	8.78
Phenols (total) (mg/L)	ND	0.09	0.71
Total Dissolved Solids (mg/L)	5	2223	5020
Total Suspended Solids (mg/L)	15	83	307
Arsenic (mg/L)	ND	0.03	0.09
Barium (mg/L)	0.10	0.64	1.77
Beryllium (mg/L)	ND	ND	ND
Cadmium (mg/L)	ND	ND	ND
Chromium (total) (mg/L)	ND	0.020	0.059
Chromium (hex) (mg/L)	ND	ND	ND
Copper (mg/L)	ND	0.05	1.21
Iron (mg/L)	3.8	14.4	46.1
Lead (mg/L)	ND	0.008	0.079
Mercury (mg/L)	ND	ND	ND
Nickel (mg/L)	ND	0.04	0.20
Selenium (mg/L)	ND	ND	ND
Silver (mg/L)	ND	ND	ND
Zinc (mg/L)	0.010	0.073	0.306

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SEPA COMPLIANCE

This is an existing permitted facility. There are no known SEPA compliance issues associated with the discharge of stormwater/leachate to the Three Rivers Regional Wastewater Treatment Plant.

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be based on the technology available to treat the pollutants (technology-based) or be based on the effects of the pollutants to the POTW (local limits). Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not interfere with the operation of the POTW.

The more stringent of the local limits-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment (AKART) of discharges to waters of the state (WAC 173-216-110). The Department has determined that the landfill membrane liners, leachate collection systems, and the aerated treatment lagoon to meet the requirements of AKART at this time.

EPA developed the General Pretreatment Regulations (40 CFR Part 403) to implement the requirements of Section 402 of the amended Federal Water Pollution Control Act of 1972 (amended in 1977). The regulations establish responsibilities of federal, state, and local governments, industry and the public to implement National Pretreatment Standards to control pollutants which may pass through or interfere with treatment processes in Publicly Owned Treatment Works (POTWs), or contaminate sewage sludge. POTWs are required to develop a local pretreatment program or to develop and enforce specific effluent limits (local limits) for industrial users to ensure renewed or continued compliance with the POTWs NPDES limits or sludge use or disposal practices.

Existing federal categorical limitations for this facility are found under 40 CFR Part 445 – Landfills Point Source Category. There are no explicit federal categorical limitations that apply to discharges to publicly owned treatment works (POTW) other than meeting general pretreatment standards. As such the technology-based effluent limitations are based on local limits (as described in the next section).

EFFLUENT LIMITATIONS BASED ON LOCAL LIMITS

In order to protect the Three Rivers Regional Wastewater Treatment Plant from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, limitations for certain parameters are necessary. These limitations are based on local limits established by the Three Rivers Regional Wastewater Authority (TRRWA) and Cowlitz County. Applicable local limits for this discharge include the following:

Table 3. Summary of Applicable Local Limits

Jurisdiction	Parameter	Limit	Comments
TRRWA	BOD	250 mg/L	If exceeded, a high strength fee is applied

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Jurisdiction	Parameter	Limit	Comments
TRRWA	TSS	250 mg/L	If exceeded, a high strength fee is applied
TRRWA	pH	5.5-9.0 standard units	
Cowlitz County	pH	5.5-9.0 standard units	
Cowlitz County	Fats, oils or greases	100 mg/L	

In addition to the local limits listed in Table 3, local limits from the City of Vancouver were used in the existing permit to set maximum daily limitations. Table 4 provides a list of applicable City of Vancouver local limits. These maximum daily limitations were meant to be interim limitations until the TRRWA has a chance to develop their own local limits for toxics. The TRRWP recently went through a major upgrade and as a result, a unified set of local limits set by the TRRWA has not been established. As such, the existing local limits from the City of Vancouver are proposed to be retained during the course of this next permit cycle. Once TRRWA establishes their own local limits, the proposed maximum daily limits may be modified, or changed during the next permit renewal, to reflect the actual requirements imposed by the TRRWA.

Table 4. Summary of Applicable City of Vancouver Local Limits

Parameter	Limit
Oil & Grease	50 mg/L
Arsenic	0.1 mg/L
Barium	5.5 mg/L
Beryllium	90 mg/L
Cadmium	0.3 mg/L
Chromium (total)	1.7 mg/L
Copper	2.2 mg/L
Cyanide (free)	0.2 mg/L
Lead	0.4 mg/L
Mercury	0.05 ,g/L
Nickel	2.1 mg/L
Selenium	0.1 mg/L
Silver	0.1 mg/L
Zinc	2.3 mg/L
Phenols or Cresols	0.6 mg/L

COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT ISSUED NOVEMBER 7, 2001

The following changes are proposed in the new permit and are summarized in Table 5.

The maximum daily limit for BOD₅ and TSS have been increased from 250 mg/L to 541 mg/L and 265 mg/L, respectively. The existing maximum daily limits of 250 mg/L were set erroneously and designate

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the maximum concentration permissible before additional sewer fees are charged. The new maximum daily limitations are based on performance and were calculated based on using TSDCalc11.xlw.

The maximum daily limitation for beryllium has been removed from the proposed permit. Data collected during the existing permit cycle shows consistently that there is non-detectable concentrations of beryllium in the discharge. Furthermore, beryllium is not listed in the state of Washington's Surface Water Quality Standards (WAC Chapter 173-201A) or in the Groundwater Quality Standards (WAC Chapter 173-200). As a result, there did not seem to be a reason to limit beryllium other than the fact that the City of Vancouver limits beryllium in their local limits.

At the request of Cowlitz County Public Works, the pH limitation range has been changed from 6.0-9.0 to 6.0-10.0. This request was discussed with staff at the Three Rivers Regional WWP and they agreed that this change would be acceptable. It should be noted that Cowlitz County's own Code restricts pH to between 5.5-9.0 and it is assumed that Cowlitz County also agrees that changing the upper limit from 9.0 to 10 would be acceptable.

Table 5. Summary of Existing and Proposed Permit Limitations

Parameter	Existing Limits	Proposed Limits
BOD ₅ (mg/L)	Maximum Daily Limit of 250 (without POTW surcharges)	Maximum Daily Limit of 541
TSS (mg/L)	Maximum Daily Limit of 250 (without POTW surcharges)	Maximum Daily Limit of 265
Oil & Grease (mg/L)	Maximum Daily Limit of 50	Maximum Daily Limit of 50
Phenols or Cresols (mg/L)	Maximum Daily Limit of 0.6	Maximum Daily Limit of 0.6
Cyanide (free) (mg/L)	Maximum Daily Limit of 0.2	Maximum Daily Limit of 0.2
Arsenic (mg/L)	Maximum Daily Limit of 0.1	Maximum Daily Limit of 0.1
Barium (mg/L)	Maximum Daily Limit of 5.5	Maximum Daily Limit of 5.5
Beryllium (mg/L)	Maximum Daily Limit of 90	No limits proposed
Cadmium (mg/L)	Maximum Daily Limit of 0.3	Maximum Daily Limit of 0.3
Chromium (total) (mg/L)	Maximum Daily Limit of 1.7	Maximum Daily Limit of 1.7
Copper (mg/L)	Maximum Daily Limit of 2.2	Maximum Daily Limit of 2.2
Lead (mg/L)	Maximum Daily Limit of 0.4	Maximum Daily Limit of 0.4

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Parameter	Existing Limits	Proposed Limits
Mercury (mg/L)	Maximum Daily Limit of 0.05	Maximum Daily Limit of 0.05
Nickel (mg/L)	Maximum Daily Limit of 2.1	Maximum Daily Limit of 2.1
Selenium (mg/L)	Maximum Daily Limit of 0.1	Maximum Daily Limit of 0.1
Silver (mg/L)	Maximum Daily Limit of 0.1	Maximum Daily Limit of 0.1
Zinc (mg/L)	Maximum Daily Limit of 2.3	Maximum Daily Limit of 2.3
pH (s.u.)	At all times between 6.0-9.0	At all times between 6.0-10.0

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, and that effluent limitations are being achieved (WAC 173-216-110).

The monitoring schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

This proposed permit proposes a few changes to the monitoring schedule. Beryllium will no longer be monitored since it is proposed to no longer establish beryllium discharge limits due to the reasons discussed earlier. Since chromium (hex) does not seem to be present in the discharge (parameter was non-detectable since January of 2002) and due to the fact that chromium (hex) was not being limited in the existing permit, there did not seem to be any reason to continue require monitoring for this parameter. Finally, due to the low concentrations of the remainder of the metals reported since January 2002, it seemed appropriate to reduce the monitoring frequency from monthly to semi-annually. All other monitoring requirements in the existing permit were retained in the proposed permit.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-216-110 and 40 CFR 403.12 (e),(g), and (h)).

OPERATIONS AND MAINTENANCE

The proposed permit contains condition S4 as authorized under Chapter 173-240-150 WAC and Chapter 173-216-110 WAC. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. The proposed permit requires submission of an updated O&M manual for the entire wastewater system.

PROHIBITED DISCHARGES

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Certain pollutants are prohibited from being discharged to the POTW. These include substances which cause pass-through or interference, pollutants which may cause damage to the POTW or harm to the POTW workers (Chapter 173-216 WAC) and the discharge of designated dangerous wastes not authorized by this permit (Chapter 173-303 WAC).

DILUTION PROHIBITED

The Permittee is prohibited from diluting its effluent as a partial or complete substitute for adequate treatment to achieve compliance with permit limitations.

SOLID WASTE DISPOSAL

The Permittee shall handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground water, surface water or a POTW. The Permittee shall not allow leachate from its solid waste material to enter state waters without providing all known, available and reasonable methods of treatment, nor allow such leachate to cause violations of the State Surface Water Quality Standards, Chapter 173-201A WAC, or the State Ground Water Quality Standards, Chapter 173-200 WAC.

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to POTW permits issued by the Department.

Condition G1. requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2. requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3. specifies conditions for modifying, suspending or terminating the permit. Condition G4. requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5. requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6. prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7. relate to permit transfer. Condition G8. requires the Permittee to control production or wastewater discharge in order to maintain compliance with the permit. Condition G9. prohibits the reintroduction of removed pollutants into the effluent stream for discharge. Condition G10. requires the payment of permit fees. Condition G11. describes the penalties for violating permit conditions.

PUBLIC NOTIFICATION OF NONCOMPLIANCE

A list of all industrial users which were in significant noncompliance with Pretreatment Standards or Requirements during any of the previous four quarters may be annually published by the Department in a

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local newspaper. Accordingly, the Permittee is apprised that noncompliance with this permit may result in publication of the noncompliance.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics. The Department proposes that the permit be issued for a period of less than five years. This will allow this permit's cycle to maintain conformance with the Department's goal of managing other individual industrial discharge permits in the Lower Columbia Basin Water Quality Management Area which revolves on a five year cycle.

REFERENCES FOR TEXT AND APPENDICES

Maul, Foster and Alongi, Inc. **Engineering Report – Cowlitz County Landfill Cell 3B, Longview, Washington.** Project No. 9041.01.04. December 21, 2001.

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

APPENDICES

APPENDIX A—PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on June 20, 2005 and June 30, 2005 in the Daily News to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on (date) in (name of publication) to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, Washington 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30 day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6280, or by writing to the address listed above.

This permit was written by John Y. Diamant, P.E.

APPENDIX B—GLOSSARY

Ammonia — Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation — The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs) — Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅ — Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass — The intentional diversion of waste streams from any portion of the collection or treatment facility.

Categorical Pretreatment Standards — National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

Compliance Inspection - Without Sampling — A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling — A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample — A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity — Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring — Uninterrupted, unless otherwise noted in the permit.

Engineering Report — A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

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Grab Sample — A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User — A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater — Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Interference — A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Local Limits — Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

Maximum Daily Discharge Limitation — The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL) — The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Pass-through — A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of state water quality standards.

pH — The pH of a liquid measures its acidity or alkalinity. A pH of 7.0 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User — A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 percent of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

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b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL) — A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU) —

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug Discharge — Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate which may cause interference with the POTW.

State Waters — Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater — That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit — A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Coliform Bacteria — A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

Total Dissolved Solids — That portion of total solids in water or wastewater that passes through a specific filter.

Total Suspended Solids (TSS) — Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

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Water Quality-based Effluent Limit — A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C—TECHNICAL CALCULATIONS

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BOD₅ PERFORMANCE-BASED EFFLUENT LIMITS

USE EXCEL TO PERFORM THE LOGNORMAL TRANSFORMATION
AND CALCULATE THE TRANSFORMED MEAN AND VARIANCE

	LOGNORMAL TRANSFORMED MEAN =	4.3714
	'LOGNORMAL TRANSFORMED VARIANCE =	0.6822
NUMBER OF SAMPLES/MONTH FOR COMPLIANCE MONITORING =		1
AUTOCORRELATION FACTOR(ne)(USE 0 IF UNKNOWN) =		0
	E(X) =	111.3337
	V(X) =	12125.250
	VARn	0.6822
	MEANn=	4.3714
	VAR(Xn)=	12125.250

MAXIMUM DAILY EFFLUENT LIMIT =	540.557
AVERAGE MONTHLY EFFLUENT LIMIT =	308.008
308.0079 292.4724	

BOD Data	LN(BOD Data)	Column1
Jan-02	363	5.894402834
Feb-02	292	5.676753802
Mar-02	220	5.393627546
Apr-02	143	4.96284463
May-02	27	3.295836866
Jun-02	96	4.564348191
Jul-02	173	5.153291594
Aug-02	40	3.688879454
Sep-02	91	4.510859507
Oct-02	57	4.043051268
Nov-02	81	4.394449155
Dec-02	83	4.418840608
Jan-03	174	5.159055299
Feb-03	182	5.204006687
Mar-03	350	5.857933154
Apr-03	180	5.192956851
May-03	159	5.068904202
Jun-03	161	5.081404365
Jul-03	33	3.496507561
Aug-03	85	4.442651256
Sep-03	50	3.912023005
Oct-03	20	2.995732274
Nov-03	22	3.091042453
Dec-03	37	3.610917913
Jan-04	27	3.295836866
Feb-04	40	3.688879454
Mar-04	34	3.526360525
Apr-04	76	4.33073334
May-04	42	3.737669618
Jun-04	29	3.36729583
Jul-04	57	4.043051268
Aug-04	66	4.189654742
Sep-04	53	3.970291914
Oct-04	39	3.663561646
Nov-04	43	3.761200116
Dec-04	70	4.248495242
Jan-05	44	3.784189634
Feb-05	34	3.526360525
Mar-05	79	4.369447852
Apr-05	154	5.036952602
May-05	41	3.713572067
Jun-05	109	4.691347882
Jul-05	78	4.356708827
Aug-05	82	4.406719247
Sep-05	48	3.871201011
Oct-05	39	3.663561646
Nov-05	61	4.110873864
Dec-05	85	4.442651256
Jan-06	472	6.156978986
Feb-06	476	6.165417854
Mar-06	303	5.713732806

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TSS PERFORMANCE-BASED EFFLUENT LIMITS

USE EXCEL TO PERFORM THE LOGNORMAL TRANSFORMATION
AND CALCULATE THE TRANSFORMED MEAN AND VARIANCE

LOGNORMAL TRANSFORMED MEAN = 4.2472
LOGNORMAL TRANSFORMED VARIANCE = 0.3289
NUMBER OF SAMPLES/MONTH FOR COMPLIANCE MONITORING = 1
AUTOCORRELATION FACTOR(ne)(USE 0 IF UNKNOWN) = 0

E(X) = 82.4004
V(X) = 2643.863
VARn = 0.3289
MEANn = 4.2472
VAR(Xn) = 2643.863

MAXIMUM DAILY EFFLUENT LIMIT = 265.347
AVERAGE MONTHLY EFFLUENT LIMIT = 179.560

179.5599 166.9838

BOD Data	LN(BOD Data)
Jan-02	175 5.164785974
Feb-02	194 5.267858159
Mar-02	188 5.236441963
Apr-02	143 4.96284463
May-02	58 4.060443011
Jun-02	84 4.430816799
Jul-02	109 4.691347882
Aug-02	29 3.36729583
Sep-02	47 3.850147602
Oct-02	46 3.828641396
Nov-02	53 3.970291914
Dec-02	29 3.36729583
Jan-03	88 4.477336814
Feb-03	64 4.158883083
Mar-03	54 3.988984047
Apr-03	93 4.532599493
May-03	78 4.356708827
Jun-03	203 5.313205979
Jul-03	84 4.430816799
Aug-03	51 3.931825633
Sep-03	69 4.234106505
Oct-03	15 2.708050201
Nov-03	265 5.579729826
Dec-03	77 4.343805422
Jan-04	61 4.110873864
Feb-04	60 4.094344562
Mar-04	76 4.33073334
Apr-04	74 4.304065093
May-04	43 3.761200116
Jun-04	84 4.430816799
Jul-04	69 4.234106505
Aug-04	65 4.17438727
Sep-04	56 4.025351691
Oct-04	72 4.276666119
Nov-04	63 4.143134726
Dec-04	82 4.406719247
Jan-05	73 4.290459441
Feb-05	42 3.737669618
Mar-05	106 4.663439094
Apr-05	101 4.615120517
May-05	85 4.442651256
Jun-05	33 3.496507561
Jul-05	58 4.060443011
Aug-05	39 3.663561646
Sep-05	51 3.931825633
Oct-05	39 3.663561646
Nov-05	65 4.17438727
Dec-05	37 3.610917913
Jan-06	307 5.726847748
Feb-06	65 4.17438727
Mar-06	45 3.80666249

Column1	
Mean	4.247159
Standard Error	0.080301
Median	4.174387
Mode	4.430817
Standard Deviation	0.573465
Sample Variance	0.328862
Kurtosis	1.008998
Skewness	0.394918
Range	3.018798
Minimum	2.70805
Maximum	5.726848
Sum	216.6051
Count	51
Confidence Level(95.0%)	0.16129

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APPENDIX D—RESPONSE TO COMMENTS

No comments were received.